

REMARKS/ARGUMENTS

Prior to this amendment, claims 1-30 and 32-36 were pending. In this amendment, claims 1, 2, 10, 28, and 29 are amended. Claims 37-38 are added. No new matter is added. Thus, after entry of this amendment, claims 1-27, 29-30 and 32-38 will be pending.

Allowed Claims

Applicants note with appreciation the Examiner's indicated allowability of claims 15-27.

Interview

Applicants would like to thank the Examiner for extending the courtesy of a telephone interview with counsel, David B. Raczkowski, on November 17, 2008.

Claim Rejections - 35 USC § 103(a), Chatterjee, Baker, Asco, Humlicek

Claims 1 and 4, are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee et al. (U.S. Patent Application Publication No. 200410024962) in view of Baker et al. (The Windows@ 2000 Device Driver Book) in further view of Asco et al. (U.S. Patent No. 7,174,538) in further view of Humlicek et al. (U.S. Patent No. 5,822,782).

Claim 1

Claim 1 is allowable over the cited references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 1. For example, claim 1 recites:

wherein each second physical device object provides a RAID-specific device identification ...

wherein the RAID class driver is configured to be loaded into the processing system when a RAID-specific device identification is provided.

At page 5, the Office Action concedes that the modified-Chatterjee does not teach or suggest "each second PDO providing a RAID-specific device identification," but that Humlicek's unique device ID 230 and configuration information 232 would be combined with the modified-Chatterjee to obtain this claim element. *See Humlicek, col. 7 lines 1-11.*

In modified-Chatterjee, the RAID class driver resides on the RAID controller (e.g. 0 or 1). *See Chatterjee, FIG. 3 and 6.* Similarly, a RAID program (driver) runs on the CPU 112

of RAID controller 102. *See Humlincek, FIG. 1.* RAID controller 102 provides access to a disk array 108. To provide this access, the program running on the CPU 112 of RAID controller 102 determines how to combine the disks into different groups. *Id.*, col. 9 lines 14-16. The already running program uses the unique device ID 230 and the configuration information 232 to figure out how the disks are grouped. *Id.*, col. 9 line 14 to col. 10 line 28.

Thus, the driver on controller 102 is loaded from the memory 114 and begins operating before any ID 230 or configuration information 232 is provided. Accordingly, the proposed combination does not teach or suggest “*wherein the RAID class driver is configured to be loaded into the processing system when a RAID-specific device identification is provided,*” as recited in claim 1. Support for this claim element can be found, for example, in paragraph 27.

Also note that the program is loaded regardless of what the unique device IDs are.

For at least these reasons, claim 1 and its dependent claims are allowable over these references.

Claim Rejections - 35 USC § 103(a), Chatterjee, Baker, Asco, Humlincek, Lu

Claims 5-10 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee in view of Baker, in further view of Asco, in further view of Humlincek et al., in further view of Lu (U.S. Patent Application Publication No. 200410073747).

Claim 10

Claim 10 is allowable over the cited references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 10. For example, claim 10 recites:

a first physical device object representing a RAID system comprised of a plurality of physical disks,...

wherein the second physical device objects interface with the physical disks through at least two disk controllers, and wherein a first portion of the plurality of physical disks is associated with a first disk controller of a first type and a second portion of the plurality of physical disks is associated with a second disk controller of a second type.

At page 11, it is not clear what section of Chatterjee the Office Action is asserting as teaching the above claim element. The Office Action refers to paragraph 42 as teaching RAID controller 1, but this paragraph does not mention RAID controller 1 (e.g. 320 of FIG. 3).

The Office Action then refers to SCSI controller 1 of Figure 2 as the other controller. However, SCSI controller 1 of FIG. 2 is the same controller as RAID controller 1. These are the same two objects. Possibly, the Office Action means that RAID controller 1 and RAID controller 0 of FIGS. 2, 5, and 6 are the two different controllers. As this seems to be the only possible interpretation, the following discussion presumes this interpretation.

In modified-Chatterjee, the RAID controller 1 is already asserted to be the first PDO. Thus, it is unclear how RAID controller 1 can also teach a separate disk controller.

Also, RAID controller 1 and RAID controller 0 return different RAID objects, such as the object R5 of Asco. Accordingly, these controllers do not access different disks that are combined into the same (i.e. first) physical device object, as recited in claim 10.

Furthermore, at page 5, the Office action has already asserted that the claimed second PDOs are part of the RAID controller 1. Thus, even if the RAID controller 1 did include the claimed second PDOs, these second PDOs do not interface with the RAID controller 0. Accordingly, the proposed combination does not teach or suggest “*wherein the second physical device objects interface with the physical disks through at least two disk controllers.*”

Furthermore, each of the RAID controllers 0 and 1 are of type SCSI. Thus, it does not appear that the Office Action has addressed this claim element. Accordingly, the proposed combination does not teach or suggest “*wherein a first portion of the plurality of physical disks is associated with a first disk controller of a first type and a second portion of the plurality of physical disks is associated with a second disk controller of a second type.*”

Note that Lu is cited for providing teachings of different types of RAID systems, but this teaching does not appear to be used in the rejection of claim 10. Regardless, this teaching fails to make up for the deficiencies in the modified-Chatterjee.

For at least these reasons, claim 10 and its dependent claims are allowable over these references.

Claim Rejections - 35 USC § 103(a), Chatterjee, Baker, Asco, Humlicek, Lu

Claims 3, 28, 29, and 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chatterjee in view of Baker, in further view of Asco, in further view of Humlicek et al., in further view of Merkey (U.S. Patent Application Publication No. 200310070043).

Claim 28

Claim 28 is allowable over the cited references, either alone or in combination, as those references fail to teach or suggest all the elements of claim 28. For example, claim 28 recites:

receiving a RAID-specific device identification for each physical disk of the RAID system;

binding a respective RAID-specific functional interface to each physical disk of the RAID system;

binding all of the RAID-specific functional interfaces to a same disk object through which the entire RAID system is accessed as a single disk; and

providing the operating system with a standard disk device identification via the disk object.

At page 8, the Office Action asserts that the RAID system is the combination of the logical disks LD0-LD3. *See Chatterjee, ¶ 36.* Also, the Office Action asserts that the controller 1 PDO is the claimed “*same disk object representing the entire RAID system.*”

However, the logical drives Ld0-Ld3 are not accessed as a single device via a single disk object. Each logical drive is in fact what the name suggests, a different logical drive. For example, FIG. 6 shows disk.sys 602 where each LD is accessed separately as a different device. Accordingly, all of the logical drives are not “*accessed as a single disk*” through the same disk object, as recited in claim 28.

Furthermore, it is not stated explicitly how or why Baker would be used to modify Chatterjee to arrive at these claim elements. Applicants remind the Examiner of the requirement to provide an explicit rationale for each proposed modification to Chatterjee, including how and

why each modification is made. See MPEP 2141(III) and 2142 and Innogenetics, NV v. Abbott Labs, 85 USPQ2d 1641, 1648 n. 3 (Fed. Cir. 2008).

Baker describes how a device (such as a disk drive) is accessed using drivers. First, a bus driver for each known bus is loaded, such that a PDO and FDO for that bus is loaded. *See Baker*, page 167, numeral 2. A particular bus driver then enumerates all of the devices on the bus, and creates a PDO for each of the devices. *Id.*, numeral 3. A driver is then loaded for the particular device, thus creating an FDO for this device. *Id.*, numerals 4 and 5. Accordingly, each of the device objects for the bus and the disk exist separate from the controller.

However, the proposed modification is being made to the disk controller. Thus, the proposed modification is contrary to the teachings of Baker.

For at least these reasons, claim 28 and its dependent claims are allowable over these references.

CONCLUSION

In view of the foregoing, Applicants believe all claims now pending in this Application are in condition for allowance. The issuance of a formal Notice of Allowance at an early date is respectfully requested.

If the Examiner believes a telephone conference would expedite prosecution of this application, please telephone the undersigned at 415-576-0200.

Respectfully submitted,

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